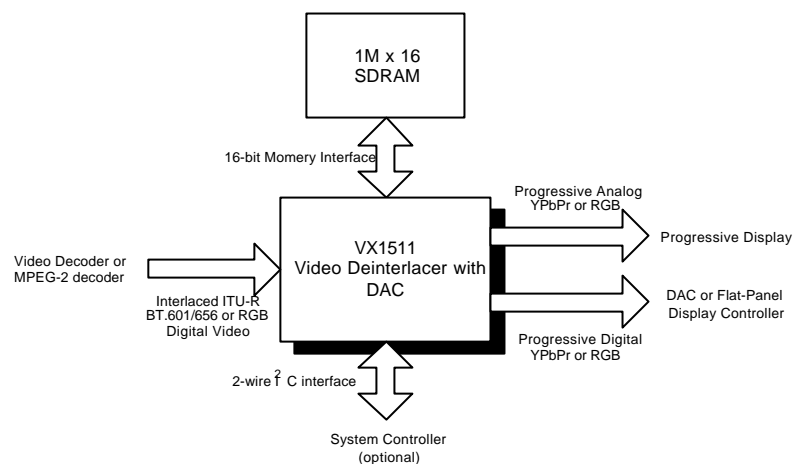


DESCRIPTION

VX1511 is a highly integrated solution for progressive video display. VX1511 accepts digitized interlaced video from NTSC/ PAL/ SECAM video decoder or MPEG video decoder, and converts it into non-interlaced formats for direct display on progressive TV, monitors, and projectors. Proprietary intrafield deinterlace provides high quality pictures without requiring external memory. With the aid of optional external frame memory, VX1511 supports 50-to-60 frame rate conversion, automatic source mode detection, and motion-adaptive interfield deinterlacing. Output DA converters and OSD are built in to support a direct connect to display devices. Various formats of digital output are also provided for further digital video processing.

APPLICATIONS

- Line doubler for progressive TV
- DVD player
- Multimedia PC



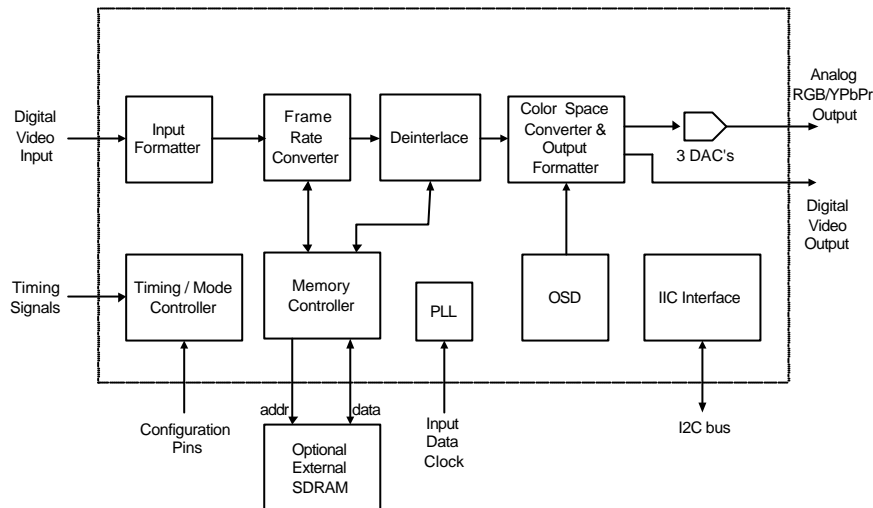
FEATURES

- Video input :
 - ITU-R BT.656 (ITU-R BT.601 in 8-bit with embedded timing)
 - 8-bit or 16-bit ITU-R BT.601 with additional HSync and VSync
 - 24-bit RGB with additional HSync and VSync
- Support square pixel input format
- Digital video output : 525P/625P YUV/RGB/YPbPr in 30/24/18(dithered) bits
- Analog video output : 3 built-in 10-bit DAC convert digital video output to analog RGB/YPbPr signals (0.7V Vpp for R/G/B/Pb/Pr, 1.0V Vpp for Y)
- Support 50Hz to 60Hz frame rate conversion (external memory needed)
- Support automatic video source detection (external memory needed)
- Support motion-adaptive interfield deinterlacing (external memory needed)
- Brightness, contrast, saturation, and hue control
- Three 256x10 color look-up tables for programmable Gamma correction
- I2C controller interface
- Hardware configuration pins for stand alone operation
- Built-in OSD with programmable font table
- 5-V tolerant digital I/O

■ Feature/Memory trade-off:

External SDRAM	Features
None	deinterlacing, color processing, OSD
1MB x 16-bit	+ frame-rate conversion, video source detection, motion-adaptive deinterlacing

BLOCK DIAGRAM



BLOCK DESCRIPTION

- I2C Interface: Slave mode standard I2C interface.
- Timing/Mode Controller: Accepts input timing signals, decides operation mode (output resolution, frame rate conversion, and scaling ratio) depends on I2C control or configuration pin setting. Generates required timing information for main data path.
- Memory Controller: Controls external SDRAM to support optional features (frame rate conversion, film/graphic detection/recovery). This controller operates under several modes (when different size and bus width of external SDRAM are used) and supports various combination of optional features.
- PLL & Clock Gen: Generates all needed clocks from a single external clock source.
- Input Formatter: Converts input into YUV422 16-bit format, and handles line lock between input data and clock.
- Color Adjust: Does brightness, contrast, hue, and saturation adjustment in YUV domain.
- Source Detect/Convert: Performs optional 50-to-60 Hz frame rate conversion and optional film/graphic mode detection and recovery. This block also provides motion detection for motion-adaptive deinterlacing. Frame rate conversion is only valid when external SDRAM exist (2MB with 16-bit bus is required). Film/graphic mode detection is only valid when external SDRAM exist (2MB with 16-bit bus is required).
- Color Space Converter: Converts pixels from YUV domain into RGB or YPbPr domain, and does required gamma correction.
- OSD: On-Screen-Display. It accepts an RGB or YUV video and adds OSD patterns on it.
- Output Formatter: Arranges pixels into desired digital and analog format and timing.
- DAC: 3-channel 10-b D/A converters.

PACKAGE

- 160-pin PQFP